Notice of Allowability	Application No.	Applicant(s)	
	10/608,220	MOORE, WILLIAM P.	
	Examiner	Art Unit	
	Terressa M. Boykin	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *6-30-03*.

2. ☒ The allowed claim(s) is/are *1-14*.

3. ☐ The drawings filed on _____ are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Terressa M. Boykin
Primary Examiner
Art Unit: 1711

Allowable Subject Matter

The following is an Examiner's statement of reasons for the indication of allowable subject matter:

Applicant(s) claimed invention is directed to a two step method which is used for solid state polymerization of dry crystalline thermoplastic polymers to form polymers exhibiting superior mechanized properties and high intrinsic viscosities while substantially elimination chemical degradation of the polymers.

The crux of the invention lies in the discovery that rapid solid state polymerization of crystalline thermoplastic polymers may be done effectively under conditions of mechanically induced surface stress and friction applied to polymer particles at incipient melt point temperatures of the crystalline polymers followed immediately by quenching the polymers to temperatures below the glass transition temperatures of the polymers by direct contact evaporative cooling with cryogenic liquids. The immediate direct quench by evaporation liquefied cryogenic gases directly on the polymer particle surfaces precludes the growth of large crystal agglomerates, spherulites, which cause polymer brittleness and degrade mechanical properties of the solid state polymerized polymers. Thus the claimed method of rapid high temperature solid state polymerization provides the preparation of high molecular weight polymers which exhibits the characteristics as discussed above while substantially eliminating chemical degradation of the polymer. Such has neither been anticipated by nor made obvious from the prior art. Note that the prior art discusses other methods for producing rapid solid state polymerization process but do not employ the process as claimed neither do they contain the advantages as mentioned and neither avoid the problems commonly

associated therewith.

For example, **USP 5750644** discloses a process for crystallizing amorphous polyethylene naphthalate prepolymer which comprises: (1) heating the amorphous polyethylene naphthalate prepolymer to a temperature which is within the range of about 80 C. to about 140 C in the presence of a stream of an inert gas or under a vacuum to devolatilize the amorphous polyethylene naphthalate prepolymer; and (2) subsequently heating the devolatilized polyethylene naphthalate prepolymer to a temperature which is within the range of about 150 C to about 260 C while providing agitation to produce the crystallized polyethylene naphthalate prepolymer. The low molecular weight polyester prepolymers utilized in solid state polymerizations are generally in the form of pellets or chips. Such pellets can vary greatly in size; however, as a general rule, the smaller the size of the pellets of polyester prepolymer the faster the solid state polymerization will proceed. The reference refers to Rinehart which notes that fast rates of solid state polymerization can be attained by utilizing polyester prepolymers which are in the form of porous pills as described in **USP 4,755,587** to Rinehart wherein it was unexpectedly found that polyester prepolymers in the form of porous pills can be solid state polymerized at very fast polymerization rates with the high molecular weight polymer produced having a very narrow molecular weight distribution. In fact, polyester prepolymers in the form of porous pills can be solid state polymerized at a rate which is essentially equivalent to the rate at which powdered prepolymers can be solid state polymerized. Such polyester prepolymers in the form of porous pills can be solid state polymerized in virtually any type of reaction zone, such as a static bed or a fluidized bed. The resultant high molecular weight polyester resin produced can be processed in conventional equipment which is designed to accept standard pellets or chips of the high molecular weight polyester resin. By utilizing the solid state polymerization technique of this invention, essentially all of the advantages associated with using pellets or chips are realized without being subjected to slow polymerization rates.

Any comments considered necessary by applicant must be submitted no later than the payment of the Issue Fee and, to avoid processing delays, should preferably accompany the Issue Fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Terressa Boykin whose telephone number is

571 272-1069. The examiner can normally be reached on Monday through Friday from 6:30am to 3:00pm.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. The general information number for listings of personnel is **(571-272-1700).**

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tmb

Terressa Boykin

Examiner Terressa Boykin
Primary Examiner
Art Unit 1711